Newcastle University Institute for Ageing

Living Better for Longer

Strategy 2016-2021

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Overview:

Newcastle University’s Vision 2021 outlines an ambition to be a world-class civic university. The vision of a civic university is a commitment to “excellence with a purpose”, to ensure a successful research intensive university connects with society to enable real world impact. This vision is realised through a focus on the key intractable challenges to society in the 21st century, via Newcastle University’s ‘societal challenge themes’ (SCTs), which are operationalised through three cross-cutting, virtual Institutes:

- **Ageing**, led by the Faculty of Medical Sciences (FMS)
- **Social Renewal**, led by the Faculty of Humanities, Arts and Social Sciences (HASS)
- **Sustainability**, led by the Faculty of Sciences Agriculture and Engineering (SAgE).

The vision of the world-class civic university remains the rationale for all three SCTs. Although the 3 SCTs each operate slightly differently to integrate into their home faculty’s existing structures, and are currently differentially resourced, they nevertheless retain a basic symmetry and have the agreed mutual objectives:

- To promote engaged research and engaged teaching and learning
- To develop strategic external partnerships and networks at national and international level
- To build Newcastle University’s reputation as a world-class civic university

Living longer is now inevitable: life expectancy in the UK and elsewhere is continuing to increase at the rate of more than 2 years per decade. Notwithstanding, the new ageing challenge for the 21st century is how do we ensure our *extra years* are spent in optimum health for as long as possible? The vision of the Newcastle University Institute for Ageing (NUIA) can be summarised as **Living Better for Longer**. Our work addresses the big question facing society today of: **how can we live better for longer in our communities and maintain our quality of life?**

NUIA has three primary aims:

- To advance knowledge in the understanding of healthy ageing by conducting world class research and learning and teaching in the biological, medical and psycho-social aspects of ageing across the life course; and thereby
- To generate impact by translating that research into real-world outcomes for beneficiaries including the public, patients and the NHS and industry; and
- In pursuing the above, to contribute to Newcastle University’s vision to be a world class, civic university through local, national and international engagement with key stakeholders.

This first part of this document summarises how NUIA operates as a Societal Challenge theme and the second half outlines NUIA’s strategy in terms of the above objectives identifying the major strategic issues and indicators of success.
Introduction: Newcastle University’s Societal Challenge Themes

Newcastle University is committed to realising the vision of a world-class civic university, relevant to the key global challenges facing society in the 21st century. The primary feature of a civic university is its sense of purpose – an understanding of not just what it is good at, but what it is good for. A civic university sees itself as delivering benefits to individuals, organisations and most importantly to society as a whole. It means putting academic knowledge, creativity and expertise to work, to come up with innovations and solutions that make a difference. The University pursues its vision of excellence with a purpose through 3 Societal Challenge themes: Ageing, Social Renewal and Sustainability.

Ageing
This theme brings together, under the Newcastle University Institute for Ageing, expertise from across the University as a hub for research and innovation activity focused on how we can Live better for longer. Our work addresses the big question facing society of: “How can we live better for longer in our communities and maintain our quality of life?”

Social Renewal
Newcastle has significant strengths in research relating to how individuals, communities and organisations adapt and thrive in a rapidly changing and challenging environment. The Newcastle Institute for Social Renewal is focused on asking the big question facing our society: How can people, communities and societies thrive in times of rapid, transformational change?

Sustainability
The Newcastle University Institute for Sustainability targets the solutions to address the global challenge of sustainability, ensuring the natural environment and its resources are safeguarded
through the development of socio-technical approaches to radically reduce resource consumption. Our vision can be summarised as: ‘enough, for all, forever’.

**Newcastle University Institute for Ageing: Who are we and how do we work?**

The aims of Newcastle University Institute for Ageing (NUIA) are:

- To advance knowledge in the understanding of healthy ageing by conducting world class research and learning and teaching in the biological, medical and psycho-social aspects of ageing across the life course; and thereby
- To generate impact by translating that research into real-world outcomes for beneficiaries including the public, patients and the NHS and industry; and
- In pursuing the above, to contribute to Newcastle University’s vision to be a world class, civic university through local, national and international engagement with key stakeholders.

Ageing was the first of the University’s Societal Challenge Themes (SCTs) in the form of the Changing Age Initiative. However the co-existence of Changing Age and a separate ageing research institute in FMS, the Institute for Ageing and Health (IAH), led to external confusion and sometimes dilution of the strength and impact of our ‘ageing’ brand. In NU1A’s first year (2014), our key priorities were to:

i) Successfully integrate Changing Age and the IAH after the latter ceased to exist on 1.8.2014 into a new, cross-cutting structure, NU1A;

ii) Create a parallel, inter-disciplinary institute similar to the other SCTs, Social Renewal and Sustainability, with a distinctive ‘brand’ and vision; and

iii) Establish the governance and organisation of NU1A via a core management team and strategic network of key internal and external partnerships.

The University already has well-established structures for promoting excellence in research and in learning and teaching. The role of NU1A is to provide added value to these and encourage further innovative, cross cutting and inter-disciplinary collaboration. NU1A has three key aims, as stated above, to be achieved in collaboration with our external stakeholders including the public, public service providers and policy makers and industry. NU1A comprises a core management team (see Box 1) and a wider NU1A executive.

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**Box 1: NU1A core management team**

NU1A Director: Professor Louise Robinson  
NU1A Deputy Director: Professor Carol Jagger  
NU1A Scientific Director: Professor Thomas von Zglinicki  
NU1A Director of Business and Innovation: Mr Graham Armitage  
NU1A Ageing Ambassador: Professor Tom Kirkwood  
NU1A Professor of Practice: Professor Peter Gore  
NU1A Programme Manager: Mrs Sharon Denley  
NU1A Communications: Ms Helen Foley  
NU1A Administrator: Mrs Val Humphrey
The NUIA Executive is overseen by an independent External Advisory Board, and incorporates a strategic network of key internal representatives which include:

- NUIA research and innovation theme leads
- NUIA learning and teaching champions
- Representatives from key core FMS structures for example, Business and Enterprise team (Martin Cox, Mike Morgan) and the Engagement team (Lynne Corner)
- Representatives from major internal ageing research initiatives such as NIHR Biomedical Research Centre, the Human Nutrition Research Centre (HNRC) and the Centre for Integrated research into Musculoskeletal Ageing (CIMA), and
- Representatives from the University’s other two faculties, SAge and HASS.

Initial plans for a NUIA external advisory board have been put on hold whilst the National Centre for Ageing Science and Innovation (NASI) operational structures and management are being established, in order to identify and review potential areas of overlap and common purpose.

**NUIA Governance: Executive Board:**

The Director and the core team contribute to the development of the University’s strategic direction, facilitate interactions with internal and external partners and stakeholders and promote knowledge exchange and innovation in the ageing arena across, and beyond, the university with the ultimate aim of generating real world impact.

The role of the research theme leads and the teaching and learning champions is to:

- promote ageing as a SCT;
• encourage people into the ageing network;
• create new synergies with respect to innovative research and teaching ideas and projects; and
• establish interactions to help NUIA facilitate impact beyond academia.

NUIA: the vision - Living Better for Longer

With life expectancy in the UK and elsewhere continuing to increase at the rate of more than 2 years per decade, living longer is inevitable. Notwithstanding, the new ageing challenge for the 21st century is how do we ensure our extra years are spent in optimum health for as long as possible? If we can reduce ill-health and disability, the benefits are wide-spread: older people remain independent and living in their own homes, health and social care costs are reduced and economic and social productivity is enhanced, creating a cadre of older people who can enjoy life, and work, for longer.

NUIA’s overall vision is focused on Living Better for Longer and addresses the big question:

“How can we live better for longer in our communities and maintain our quality of life?”

Our work brings together inter-disciplinary expertise from all three University faculties as a hub for three core areas of activity: research and innovation, engagement and knowledge transfer, and learning and teaching. Through basic science, clinical research, engineering, computing, business, social sciences and the arts, our extensive interdisciplinary programme of research and innovation helps us to understand and intervene in three key areas; each area has two themes of work:

• How do we age?
• How can we age better?
• How can we meet the global challenge of ageing?
NEWCASTLE UNIVERSITY INSTITUTE FOR AGEING

Our key themes of work

<table>
<thead>
<tr>
<th>How do we age?</th>
<th>How can we age better?</th>
<th>How do we meet the global ageing challenge?</th>
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<tr>
<td>RESEARCH AND INNOVATION</td>
<td>ENGAGEMENT AND KNOWLEDGE EXCHANGE</td>
<td>LEARNING AND TEACHING</td>
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- NIHR Biomedical Unit on LB Dementia
- NIHR School for Primary Care Research
- NIHR Biomedical Centre on Ageing
- FUSE – National Centre for Public Health
- MRC Centre for Ageing & Vitality
- National Centre for Ageing Science and Innovation

How do we age?

Our ageing research seeks to achieve a deeper understanding of why our bodies experience the features of ageing. It looks at what changes occur at a molecular and cellular level, why we are more likely to develop illnesses such as osteoarthritis and dementia as we grow older. Our ageing research in this area falls into two themes of work:

- **understanding the mechanisms**
- **causes of age-related illness**

**Understanding the mechanisms of ageing**

**Theme Lead:** Professor Doug Turnbull (Director of the Wellcome Trust Centre for Mitochondrial Research & Professor of Neurology)

**Deputy:** Dr Joao Passos (Lecturer)

Our work uses a combination of cell cultures, models of ageing and systems biology and aims to further understand the essential networks of stress responses that govern ageing at the molecular and cellular level, aided by a combination of experimentation and mathematical modelling. Present work focuses on: cell senescence; mitochondrial biology; genomic stability and evolutionary biology.

We are looking for interventions aimed at slowing down the ageing process and at identifying better candidates for markers of biological age. Research in this area is conducted in close collaboration with key research institutes and centres within the University including: Institute of Cellular Medicine; Institute of Cell and Molecular Biosciences; Institute of Genetic Medicine; Centre for Integrated
Causes of age-related illness

Theme Lead: Professor David Burn (Director, Institute of Neuroscience & Professor of Movement Disorder Neurology)

Deputy: Professor Lynn Rochester (Professor of Human Movement Science)

Ageing is the single most important risk factor underpinning the major chronic diseases. As healthy life expectancy has not increased at the same rate as longevity, the prevalence of age-related disease continues to increase. We have a substantial programme of research in this area bridging between the mechanisms and clinical research to comprehensively address the complex health care needs of the older person, based on an advanced understanding of the ageing process and age-related disease. This research is primarily focused on three major disease areas:

- ageing brain (dementia and stroke)
- ageing body (cancer, chronic liver disease, diabetes and cardiovascular disease)
- ageing limbs (musculoskeletal disease).

Much of this work is carried out in the context of our NIHR Newcastle Biomedical Research Centre in Ageing and Chronic Disease, and NIHR Newcastle Biomedical Research Unit in Lewy Body Dementia, both collaborations with the Newcastle upon Tyne Hospitals NHS Foundation Trust, and supported by strong collaboration with our research institutes (Northern Institute for Cancer Research; Institute of Cellular Medicine; Institute of Genetic Medicine; and Institute of Neuroscience).

How can we age better?

Healthy life expectancy is not keeping pace with increasing longevity. Many people spend long periods of time towards the end of their life living with disease and disability. The cost of this, financially and in terms of quality of life, is no longer acceptable. We can address this through cheaper or more effective treatments but we also need to target the causes of these diseases, reducing their prevalence through prevention and their impact by early diagnosis and intervention.

Our ageing research in this area is focused in two themes:

- Ageing well across the life course
- Living well with chronic illness

Ageing well across the life-course

Theme Lead: Professor Paula Moynihan (Professor of Nutrition & Oral Health)

Deputy: Dr Suzanne Moffat (Senior Lecturer in Public Health)

Our research recognises the importance of socio-economic, environmental and lifestyle factors on health and wellbeing across the life course. Recognising that inequality of opportunity creates and embeds inequalities in health, we seek to identify and implement interventions aimed at tackling disparities in health including access to resources.
Our theme members come from a wide range of disciplines including nutrition, exercise physiology, psychology, sociology, gerontology, philosophy, oral health and computing science and we have close collaborations with the Institute of Health and Society, Human Nutrition Research Centre, NIHR School of Public Health (FUSE), NIHR School for Primary Care Research (SPCR), Centre for Oral Health Research, Open Lab and colleagues in the Faculty of Humanities, Arts and Social Science.

**Living well with chronic illness**

**Theme Lead:** Dr Steve Parry (Clinical Senior Lecturer/Consultant)

**Deputy:** Professor Louise Robinson (Director, Newcastle University Institute for Ageing; Professor of Primary Care and Ageing)

Living with chronic illness is inevitable as we get older. Appropriate early treatment, good quality care and social and emotional support can allow people to manage these conditions and remain independent. Our research seeks to identify new treatments and improve quality of life and also to enhance the quality and efficiency of their health care. Our work focuses on a wide range of conditions and issues relevant to old age including: Arthritis; Cancer; Dementia; Diabetes; Falls; Liver disease; Parkinson’s disease and Stroke. Much of this work is carried out in the context of our NIHR-funded ageing initiatives, Newcastle NIHR Biomedical Research Centre in Ageing and Chronic Disease; NIHR Biomedical Research Unit in Lewy Body Dementia, both collaborations with the Newcastle upon Tyne Hospitals NHS Foundation Trust, and the NIHR SPCR, and supported by strong collaboration with our Institute of Cellular Medicine, Institute of Health and Society and Institute of Neuroscience and within University research centres including the Centre for Ageing and Vitality.

**How can we meet the global challenge of ageing?**

Globally, ageing is changing the shape of society, increasing its average age, and distorting its shape through the disproportional population growth amongst the oldest segments of society. To fully realise the potential offered by increased longevity, we need to do more than merely avoid or treat the health issues associated with ageing. To address this, we must reconsider the way in which we distribute resources and responsibilities in all aspects of life.

To contribute to thinking and to delivery of change in response to this challenge, our research in this area is focused on two themes of work:

- **enabling environments and technologies**
- **economic and social impact of ageing**

**Enabling environments and technologies**

**Theme Lead:** Professor Tom Joyce (Professor of Orthopaedic Engineering)

**Deputy:** Dr Katie Brittain (Lecturer in Social Gerontology)

Our goal is to understand how the design of the physical and social environments in which we live and work, and the technologies we use, can promote wellbeing and support engaged citizenship in older people. Through cross-disciplinary research in design, technology and social science, we are undertaking research that seeks to give older people a voice and place them at the centre of the technology and environment research agenda.
Enabling environments and technologies research is conducted by disciplines from all three faculties and involves designers, computer scientists, engineers, clinicians and social scientists across the University, with key involvement from Newcastle University’s Open Lab and SAgE.

**Economic and social impact of ageing**

**Theme Lead:** Professor Tom Scharf (Professor of Social Gerontology)

**Deputy:** Dr Matt Flynn (Senior Lecturer, Business School)

Our research also seeks to understand how we can realise the opportunities associated with an ageing society. Work in this theme looks at:

- How can we increase disability free life years and what factors influence this?
- How can we support people to remain active in the work force or as consumers?
- How do we address the growing market of older people, what will they buy?
- What do we need to do to prepare ourselves for retirement?

By substantially changing the way we think about ageing and older people, we can create a world better suited to the much older population balance we will see in future. This work draws on colleagues from throughout the University, including the Business School, the Institute of Health and Society and NIHR Schools for Public Health and Primary Care to identify, design, and evaluate new solutions to deliver economic and social benefit in the face of an ageing society.

**NUIA: Strategic priorities for 2016-2021**

Newcastle University is known globally for its academic excellence and impact in a broad range of inter-disciplinary research on ageing. In healthcare in particular, its research is internationally recognised for its strong contribution to improved understanding of the mechanisms and treatment of chronic disease and the consequent benefit to patients. NUIA sits at the hub of a network of ageing organisations, programmes and projects across Newcastle University, chiefly located at the unique Campus for Ageing and Vitality, with a focus on delivering ‘products and services’ for a society with a significantly older demographic profile than that for which existing policy and social provision was designed and developed. Early-stage academic staff members are establishing long term research agendas grounded in the NUIA vision whilst the importance of ageing and demographic change is being embedded widely in University curricula.

NUIA will continue to build upon this past success with a focus on the following priorities:

- **To advance knowledge in the understanding of healthy ageing by conducting world class research and learning and teaching in the biological, medical and psychosocial aspects of ageing across the life course.**

- **To generate impact by translating research into real-world outcomes for beneficiaries including the public, patients and the NHS and industry.**

- **In pursuing the above, to contribute to Newcastle University’s vision to be a world class, civic university through local, national and international engagement with key stakeholders.**
The next section outlines what success would look like for NUIA over the next 5 years in terms of the above priorities.

1) To advance knowledge in the understanding of healthy ageing
i) Research and Innovation

The University has a strong reputation in ageing research predominantly centred in the Faculty of Medical Sciences through specific centres and initiatives largely funded through the Research Councils, for example: the MRC Centre for Ageing and Vitality; the NIHR Biomedical Research Centre in Ageing and Chronic Disease and the Biomedical Research Unit on Lewy Body Dementia. NUIA has already enhanced this reputation through the award from Government Office of £20million to develop NASI, the National centre for Ageing Science and Innovation. The NASI concept subsequently informed the development of the successful National Institute for Smart Data Innovation (NISDI). NUIA will continue to build upon this success through imaginative and innovative research proposals involving a wide network of inter-disciplinary researchers and broad engagement with external stakeholders, for example the NIHR Biomedical Research Centre renewal bid (2016-2021).

ii) Learning and teaching

One of the most pressing needs in a world that has been relatively slow to appreciate the scale and impacts of population ageing is to educate the next generation of care professionals and researchers capable of delivering the necessary societal response to the ageing challenge. Specific ageing-related teaching is currently provided through doctoral training schemes and also via specific course such as the MRes in Ageing & Health and the M Clinical Research (Ageing). The vocational MBBS and BDS courses have ageing embedded throughout the curricula, but there are opportunities to make this profile higher and wider both within the University (i.e. HASS and SAgE) and external to Newcastle.

NUIA intends to foster improved understanding of ageing context and subject matter through both formal and informal opportunities, both in subject-specific modules but also within the University’s offering for development of wider knowledge and skills, through facilitating initiatives such as Massive Open Online Courses (MOOCs) – a ‘Falls’ MOOC was launched in 2014 with a ‘Dementia’ MOOC to be launched in May 2016 – as well as securing funding to develop e-learning initiatives such as Newcastle Ageing Generations Education (NU-AGE) with €25,000 secured from EIT Health as part of their executive education programme to develop a short course on ‘Ageing for Innovators’.

2) To generate impact by translating research into real-world outcomes for beneficiaries including the public, patients and the NHS and industry

The landscape for engagement by universities in an area as broad and diverse as ageing is intrinsically complex. One of the key roles for NUIA is to develop innovative ways of addressing and delivering suitable forms of engagement with other similar academic institutes and key external organisations and partnerships, as befits a societal challenge theme committed to a civic agenda through excellence with impact. These activities will need to be closely aligned with both FMS’s Engagement strategy and the wider University engagement policy and practice led by the PVC for Engagement, Professor Richard Davies, as well as the University’s Internationalisation strategy.

Sub-theme: Public Engagement

A key role for NUIA is to build upon the earlier work of the Changing Age Initiative to develop and improve societal attitudes to ageing by generating enthusiasm and excitement about ageing science
and innovation locally, nationally and internationally. NUJIA aims to facilitate life-long learning opportunities for people of all ages. Through working with the FMS Engagement team and University supported initiatives such as Voice North, which successfully supports direct public involvement in the development and implementation of evidence-based products and services for healthy ageing, NUJIA will help to develop a community of Research Active Citizens equipped to question, interpret, challenge and debate evidence around ageing.

Sub-theme: Policy and Practice

NUJIA has considerable potential to influence policy and practice, enhancing the previous work of Changing Age to alter the poorly informed attitudes to ageing that lie behind many of the existing shortcomings in the policy and practice arena. Institutions of all kinds are currently challenged in many ways to reconsider their internal policy and practice, driven partly by legislative change and partly by changing expectations of the “baby boomer” generation approaching the traditional age of retirement. It is already clear that this particular cohort is much less willing than previous generations to conform to traditional attitudes and expectations. NUJIA will use its relationship with influential lobbying organisations to influence policy and practice rather than seeking to lobby for change directly. To this end, opportunities to involve key organisations such as the International Longevity Centre (ILC), Age UK and Alzheimer’s Society on the Campus for Ageing and Vitality will become increasingly important.

Sub-theme: Business and enterprise

A key mechanism for creating impact is through innovation, both technological and social, for new policy, products and services. This will include not only innovation developed or driven by the University but also innovation inspired by, or facilitated from, the University’s programme of research and engagement but delivered by others. Effective capture of the University’s success in this area of impact will require the maintenance of long-term relationships with recipients of support and engagement. The successful bid for NASI, together with the National Institute for Smart Data Innovation (NISDI) and our membership of the European KIC initiative (EIT Health), heralds the start of a major new area of work around ageing-related innovation at Newcastle University which will require strong partnerships with business and close collaborative working between FMS and SAgE.

Sub-theme: Health and Clinical Services

A major dimension of the Societal Challenge Theme of Ageing concerns the development and implementation of effective care services targeted at both the current generation of older people as well as enabling better trajectories of health in future generations, thus postponing the onset of high-cost diseases and dependency. This has been recognised as a priority by both the Academic Health Science Network and the Northern Health Science Alliance (an alliance of the N8 Universities and their partner NHS Trusts).

Newcastle Academic Health Partners

There is a long tradition of strong partnerships between the Medical School and hospitals in the Newcastle area, with some of the best facilities in the United Kingdom. Newcastle Academic Health Partners (NAHP) relies on a key partnership between the Faculty of Medical Sciences, the Newcastle upon Tyne Hospitals NHS Foundation Trust and Northumberland, Tyne & Wear NHS Foundation Trust.
NAHP harnesses clinical and academic expertise to make sure patients will benefit sooner from new treatments, diagnostics and prevention strategies. The partnership brings together Newcastle Hospitals and Northumberland, Tyne and Wear NHS Foundation Trusts with Newcastle University. Clinical Academics benefit from state-of-the-art clinical facilities and the patient cohorts essential for high quality translational research. The hospitals benefit by the input of Clinical Academics into the delivery and development of frontline services.

The track record of this activity is well reflected in the awards for the NIHR Biomedical Research Centre in Ageing and Chronic Disease and Biomedical Research Unit in Lewy Body Dementia. Important innovation has been led through the creation, with Wellcome Trust support, of the Clinical Ageing Research Unit, and latterly through the launch of the NHS CRESTA Clinics within the Biomedical Research Building, offering pioneering ways of treating complex age-related co-morbidity and translate evidence into practice.

3) Build Newcastle University’s reputation as a world class civic University

Building upon Newcastle University’s ‘Raising the Bar’ initiative, NUIA aims to promote its pioneering vision of a world-class civic university to inspire other universities worldwide to reflect upon their own practice. Moreover, we seek to make major contributions to national and international policy and practice and thus further enhance our global reputation. We will pursue this through the activities outlined below:

- Document and disseminate the breadth and depth of NIUA’s work via a range of methods, for example our website, our Annual Review and engagement events;
- Organise and participate in high profile public and academic events at regional, national and international levels, e.g. party conferences;
- Develop and implement an NUIA Media Strategy in conjunction with the University’s media team and key external organisations, for example Linstock; and
- Contribute to the University’s Public Engagement initiatives such as Public Lectures, Honorary Degrees and public appointments.